INS Data Collection System

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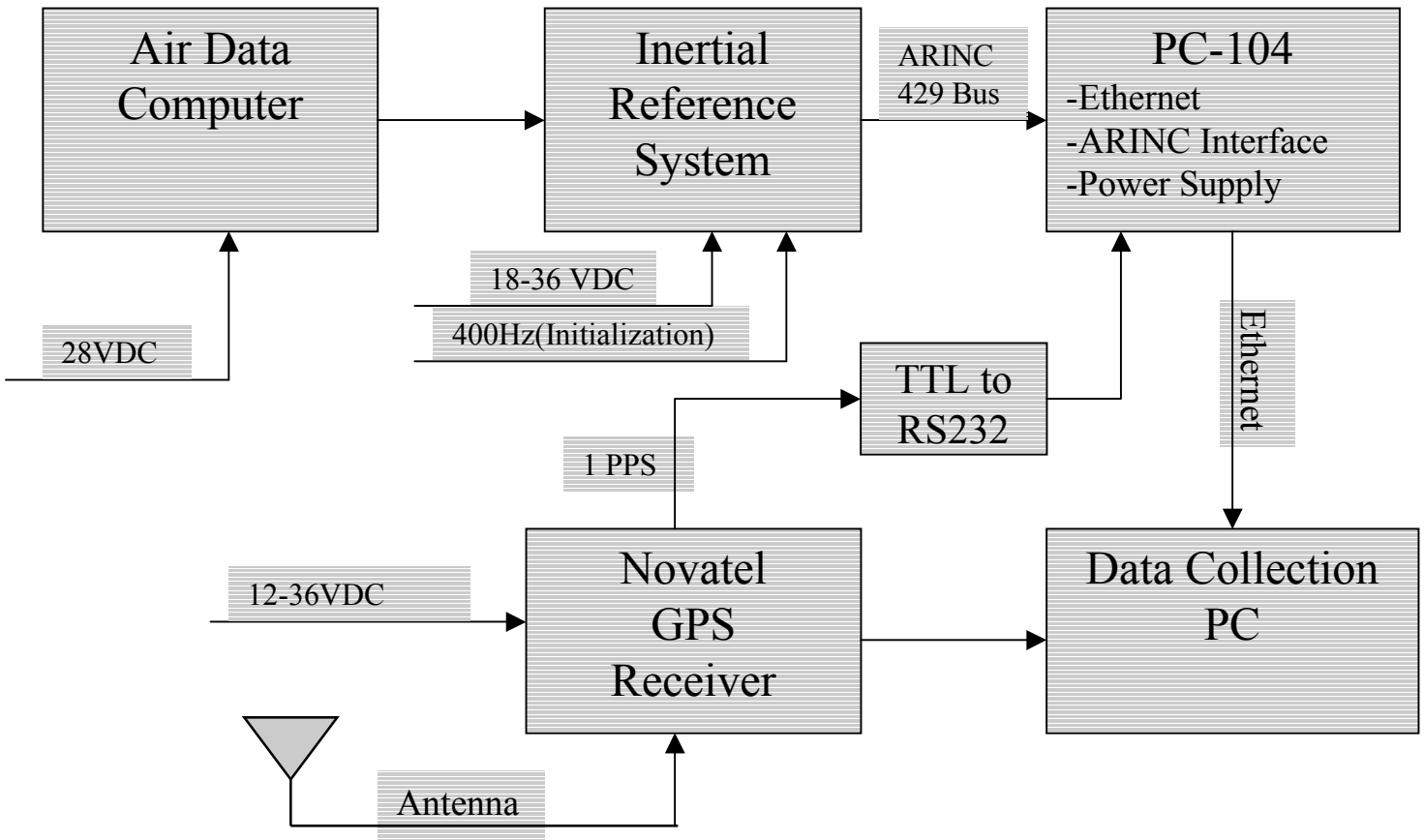
Purpose:

- This project will develop a method of using INS data to update position and velocity data during loss of GPS lock
- Software development and modification are the primary focus at this time
- Hardware installation and system configuration are also being evaluated
- Future testing may include the collection of control system data

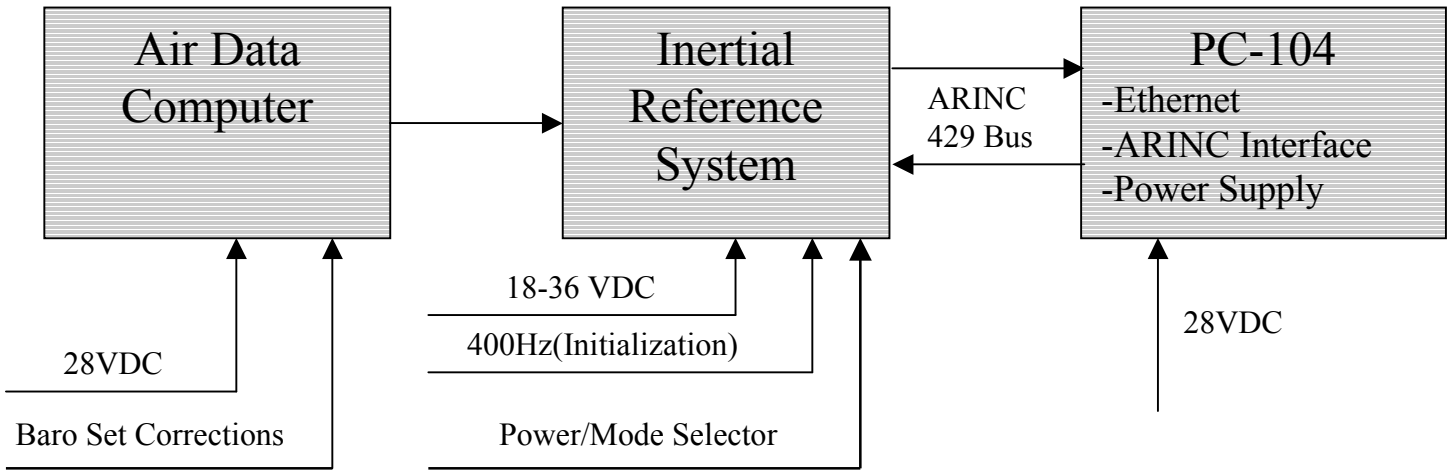
Flight Test Vehicle

- L - 29 Delfin
- High Altitude
- High Speed
- Fully Aerobatic

Initial Data Collection System Block Diagram



Updated Data Collection System Block Diagram



Data Collection

- INS data will be collected on the PC-104 computer through the ARINC card
- Time tagging will be accomplished using the CPU clock
- GPS data collection software will be added later

Software Development Considerations

- ARINC card is configured for high speed receive and low speed transmit
- Initialization data is transmitted in 2 to 4 bursts on the low speed bus
- INS data is received on the high speed bus
- Labels can be used to mask unwanted outputs

Hardware Configuration Considerations

- Encoding altimeter will be replaced with a variable potentiometer
- Control Display Unit (CDU) could be replaced with a 4 position switch or 2 single throw switches

Conclusions

- Data collection system is still in development
- As the development continues changes will be made to the early versions of the software
- Other types of hardware that will be integrated into the system will drive these changes

Questions?